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Report of the Board of Auditors

for the year ended 31 December 2016

Volume V
Capital master plan

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Note

Symbols of United Nations documents are composed of letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

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Letter of transmittal

Letter dated 30 June 2017 from the Chair of the Board of Auditors addressed to the President of the General Assembly

I have the honour to transmit to you the report of the Board of Auditors on the capital master plan for the year ended 31 December 2016.

(*Signed*) Shashi Kant **Sharma**
Comptroller and Auditor General of India
Chair of the Board of Auditors

Capital master plan: key facts

$2,309.3 million	Anticipated final cost of the capital master plan (excluding the renovation of the Dag Hammarskjöld Library and South Annex Buildings)
$37.3 million	Anticipated final cost of remaining scope to be completed by June 2017

Scope

Secretariat Building	Completed in May 2015
General Assembly Building	Substantially completed and handed over in September 2014
Conference Building	Substantially completed in February 2013
Library and South Annex Buildings	Removed from scope of capital master plan in 2015
Demolition of temporary North Lawn Building	Completed in February 2017
Landscaping of North Lawn	Final completion expected by June 2017
Security-related works at 42nd and 48th Streets	Final completion expected by June 2017

Summary

Background

1. The capital master plan, a complex, high-value project to modernize and improve the operating efficiency of the United Nations Headquarters buildings without compromising day-to-day operations, is almost complete. The General Assembly approved the project in 2002 (see Assembly resolution 57/292) with an initial budget of $1.877 million and an expected delivery date of November 2013. The main buildings were substantially complete in September 2014 and have been reoccupied by United Nations staff; responsibility for the operation and maintenance of the campus has been transferred to the Administration. The anticipated final cost of the project is now $2,309 million, and construction work is expected to be completed by June 2017. Final administrative closure of the project and all related contracts is expected in August 2017.

2. Over its lifetime, the project has suffered unforeseen cost increases owing to such factors as the need to remove large amounts of asbestos from the buildings, the introduction of more stringent and costly security requirements and the damaging impact of Storm Sandy. In its reports, the Board has drawn attention to significant shortcomings in project management and cost control. Owing to insurmountable difficulties in meeting security requirements, the planned refurbishment and modernization of the Library and South Annex Buildings were removed from the scope of the project.

3. Major benefits expected from the investment included a more modern, energy-efficient, safe and accessible working environment.

Scope of the report

4. In its resolution 57/292, the General Assembly requested an annual report from the Board of Auditors on the capital master plan. This fourteenth annual Board report on the project assesses the project's status as at 31 March 2017. The present report focuses on:

- Financial status (see sect. B);
- Project schedule and scope (see sect. C);
- Managing the campus (see sect. D);
- Maximizing the benefits of the renovated campus (see sect. E).

5. The audit was performed in the period from 13 March to 7 April 2017. The present report has been prepared on the basis of the information available at the time of audit.

Key findings

Financial status of the project

6. **The anticipated final cost of the capital master plan project, excluding the renovation of the Dag Hammarskjöld Library and South Annex Buildings, has remained largely unchanged.** As shown in the fourteenth annual progress report of the Secretary-General on the implementation of the capital master plan (A/71/309), the total cumulative value of savings from cancellation of prior-year obligations through the lifetime of the project amounted to $217.4 million. The Board noted that while the savings reported from cancellation of prior-year obligations are specifically included in a separate and distinct budgetary line within the annual progress reports

on the capital master plan, providing visibility to the total value of savings over the entire project from its inception, it is not possible to drill down the savings to the specific project components and the reasons for them.

7. **The main contractor has filed two notices of arbitration against the United Nations seeking indemnification, in the event that it is required to settle substantial claims from its subcontractors. The United Nations has now filed a claim in the first case seeking declaratory relief that it is not obligated to indemnify the main contractor under its contract with the main contractor.** In the event that any claims against the United Nations were upheld, the final project cost could increase. The Administration has retained external legal counsel to defend its interests in the dispute between the contractors. The Administration informed that claims against the organization are not met from the budget of individual offices and department, but rather absorbed by the overall uncommitted funds of the Organization and/or cancellation of obligations. It was also added that the project budget and forecast do not take into account any amount that may potentially be required to be paid to the construction management company within the context of the arbitration.

8. **There has been no progress in developing new proposals to renovate the Library and South Annex Buildings, which were removed from the scope of the capital master plan in 2015.** The Administration has informed the Board that comprehensive proposals will be prepared only once the General Assembly makes a decision on the question of long-term accommodation in New York. The Administration also informed that preparation of such comprehensive proposals with alternative options requires the engagement of a third-party consultant with the requisite expertise in the development of such submissions.

Managing the campus

9. **Although the transition from the construction phase to managing day-to-day operations occurred, the Administration does not have adequate human resources for basic preventive maintenance.** The Administration planned to engage a specialized firm at the end of 2017 after 12 months of maintenance data had become available in the plant maintenance module of Umoja. The firm was expected to undertake an external independent review of the maintenance practices and approaches and assess the balance between outsourcing and the in-house provision of maintenance, ensuring the cost-effective use of resources. The commissioning of the specialist firm to review its approach to maintaining the renovated campus has now been planned for late 2018 owing to the delayed deployment of the Umoja plant maintenance module.

10. **The Board is concerned about internal controls with respect to the safeguarding of assets.** After renovation of the buildings under the capital master plan projects, the Administration was unable to locate 208 assets (20.8 per cent) out of 1,000 assets physically verified.

Maximizing the benefits of the renovated campus

11. **Although the Energy Dashboard and Reporting Tool (EDART)[1] became operational in January 2016, the Administration is not in a position to demonstrate benefits from energy efficiency.** The Administration informed that the EDART system had proved to be unreliable as regards accurately recording usage of steam, gas and water. It was added that the Administration was continuing to work

[1] The Energy Dashboard and Reporting Tool is used to monitor energy consumption and report on energy efficiency.

with the vendor to improve accuracy and it was stated that in the absence of reliable information derived from EDART, the Administration was relying on utility bills to track utilities usage. EDART is being used only as a secondary source of information.

12. Although there has been a significant reduction in energy consumption, we observe that there is scope for further improving efficiency gains by targeting achievement of the parameters set in the April 2015 report of the consultant, where feasible.

13. **The Board notes that the capital master plan implemented accessibility elements in the Headquarters campus such as Braille signages and fully accessible toilets. However, the Board is of the opinion that the effectiveness of these measures can be validated only by the users.**

14. **The Administration has implemented a flexible workplace on three floors of the Secretariat building and plans to cover five more floors during 2017.** The full cost of the project spread over three years is likely to be offset by a reduction in rent and maintenance by 2023 pursuant to the Secretary-General's progress report on the implementation of a flexible workplace at United Nations Headquarters.

Overall conclusion

15. The capital master plan is in its final phase after nearly 15 years and an investment of $2,309.3 million. All major procurement actions have been finalized, major construction works are complete, residual works are in progress and the administrative close-out of completed contracts continues. While the impact of unforeseen events and a history of inaccurate cost estimates have contributed to significant cost and time overruns over the life of the project, the Administration should be able to complete the remaining activities within budget by 30 June 2017. The date for final completion and the administrative close-out of the capital master plan is August 2017.

Recommendations

16. The Board recommends that the Administration:

Managing the campus

(a) **Make efforts to operationalize the Umoja plant maintenance module to enable an early review of its maintenance practices. This would enable the Administration to prepare a long-term maintenance plan covering any gaps in its maintenance efforts;**

(b) **Take steps to strengthen the internal controls for protection of assets and for their proper recording and monitoring;**

Maximizing the benefits of the renovated campus

(c) **Resolve issues associated with the Energy Dashboard and Reporting Tool (EDART) as related to recording and reporting on usage of steam, gas and water so as to enable real-time monitoring of all utilities;**

(d) **Carry out a feasibility analysis on the parameters set in the consultant's report of April 2015 to identify areas for improving energy efficiency, after taking into consideration the enhanced flexibility offered by the implementation of the capital master plan;**

(e) Conduct a user survey on the effectiveness of the accessibility features in order to identify gaps, if any, in the infrastructure created as part of the capital master plan;

(f) Regularly monitor productivity gains while ensuring a reduction in space requirements.

A. Background

The project and its objectives

1. The capital master plan is a complex, high-value project to modernize, secure and preserve the United Nations Headquarters campus in New York without compromising day-to-day operations. The approved scope of the project included:

- Renovating five major buildings as well as the extensive basement complex
- Constructing a temporary secure building on the North Lawn to house certain activities during their renovation, and demolishing it after the completion of their renovation
- Transferring staff to and back from temporary office space across New York City, involving more than 10,000 staff moves

2. The expected project outcome (see A/55/117, para. 2) was a Headquarters campus which:

- Is energy-efficient, free of hazardous materials and compliant with the building, fire and safety codes of the host city
- Provides full accessibility to all persons
- Meets all reasonable modern-day security requirements
- Preserves the original architecture to the greatest extent possible

3. The General Assembly approved the original objectives of the project in 2002 (see Assembly resolution 57/292) and the original budget of $1,877 million in 2006 (see Assembly resolution 61/251). In 2007, an accelerated strategy was adopted, which increased cost but reduced the period of renovation so as to minimize disruption to United Nations operations. In March 2015, the Library and South Annex Buildings were formally removed from the scope of the project (see Assembly resolution 69/274 A) owing to financial and security concerns.

4. The Under-Secretary-General for Management is the senior responsible owner of the project. In 2003, the United Nations established the Office of the Capital Master Plan to manage the delivery of the project, working with other parts of the Administration.

Developments since the Board last reported

5. Since the Board last reported:

- The anticipated final cost of the capital master plan project, excluding the renovation of the Dag Hammarskjöld Library and South Annex Buildings, has remained largely unchanged.
- Before its closure, the Office of the Capital Master Plan planned to transfer a core team of eight staff, three contractors and 20 consultants from the programme management firm to the Office of Central Support Services to close all outstanding contracts and manage the remaining works. However, the staff moved to other offices and assumed new functions. Facilities Management Service personnel in the Office of Central Support Services assumed the full roles and responsibilities associated with the remaining activities as related to close-out of the capital master plan as part of their day-to-day portfolio. The Planning, Design and Construction Section of the Facilities Management Service is managing the operational aspects and oversees the construction activities itself, while the Administrative, Finance

and Personnel Section of the Facilities Management Service is managing the day-to-day transactional, finance and budget activities, as well as the overall close-out of the project.

- Demolition of the North Lawn Building has been completed and the final completion certificate was issued on 27 February 2017. Associated landscaping work which was due for completion by November 2016 is now expected to be completed by June 2017.
- Work related to 42nd and 48th Street Service Drive entrances, which was due for completion by December 2016, is now expected to be completed by June 2017.

Previous recommendations

6. Out of the 12 outstanding recommendations contained in the Board's reports, 2 (17 per cent) had been implemented and 10 (83 per cent) were under implementation. The annex to the present report summarizes the action taken in response to the Board's previous recommendations in more detail.

B. Financial status of the project

7. The final cost of the capital master plan, excluding the renovation of the Dag Hammarskjöld Library and South Annex Buildings, is $2,309.3 million. This amount comprises the following three sub-elements:

- Project costs of $2,150.4 million
- Associated costs and the cost of the secondary data centre borne by the capital master plan in the amount of $154.7 million
- A support account contribution in the amount of $4.2 million for the secondary data centre

8. In the Secretary General's fourteenth annual progress report on the implementation of the capital master plan (A/71/309), it is mentioned that the total approved funding for the capital master plan project amounts to $2,150.4 million, comprising appropriations for the original project scope of $1,876.7 million, donations of $14.3 million, interest income and the plan's working capital reserve amounting to $159.4 million, and $100.0 million in funding for the enhanced security upgrades. All approved funding in the amount of $2,150.4 million has been applied in full to the renovation activities so as to meet contractual obligations as they fall due for payment.

9. Two post-renovation activities, namely, North Lawn Conference Building demolition and landscaping and work related to the 42nd and 48th Street Service Drive entrances, with an initial estimated cumulative cost of $35 million, are still ongoing. The final anticipated cost is $37.3 million, in comparison with last year's forecast of $36.1 million.

10. The total uncommitted balance of the capital master plan account as at March 2017 amounted to $628,000.

Budget

11. As mentioned in the report of the Board of Auditors for the year ended 31 December 2015 (A/71/5 (Vol. 5)), the consolidated budget of the project remains unchanged, at $1,995 million, of which $1,991 million is related to the main construction project and $4 million to the secondary data centre. As noted in the fourteenth annual progress report of the Secretary-General on the implementation of

the capital master plan, the estimated amount of interest to be accrued on the balance of the capital master plan funds is expected to be $114.4 million by the time of the financial close-out of the project. The total approved funding for the project with the expected cost for completion of the project is given below:

Table 1
Source of funding

Description	*Amount (Millions of United States dollars)*	*Basis*
Total appropriations from 2004 to 2011	1 876.7	General Assembly resolutions 57/292, 59/295, 60/248, 60/256, 60/282, 61/251, 62/87 and 64/228
Voluntary contributions	14.3	Received under the capital master plan donations programme
Funding for the enhanced security upgrades	100.0	Contribution by the host country
Consolidated budget	**1 991.0**	
Use of interest income and the capital master plan working capital reserve	159.4	General Assembly resolutions 66/258, 67/246 and 68/247 A
Total funding available	**2 150.4**	

Source: Administration data.

Cost changes

12. In the Secretary-General's fourteenth annual progress report on the implementation of the capital master plan, it is observed that the project resulted in a cost overrun of $159.4 million, or 8 per cent, with an anticipated final cost of $2,150.4 million compared with the consolidated budget of $1,991 million. The cost overrun, as detailed in previous Board reports, was due mainly to changes in the construction strategy and the resultant increase in professional fees, higher swing space costs, unforeseen events such as revised and more costly security standards, and the damaging impact of Storm Sandy.

13. As mentioned in the previous Board report (A/71/5 (Vol. V)), the anticipated final construction cost excludes work originally planned for the Library and South Annex Buildings, at an estimated cost of $65 million, which was removed from the scope of the project in March 2015. The anticipated final cost for construction is therefore the cost of delivering a reduced scope (the renovation of three buildings instead of five) at a higher cost than originally planned.

(a) Cost of the works of main contractor

14. The total anticipated final cost of 24 guaranteed maximum price contracts with the construction manager as at March 2017 amounted to $1,698.15 million. The Board observed that the reported anticipated final cost for the works of the main contractor has decreased by an amount of $1.85 million since the Board last reported. The Administration informed that the changes in the scope of the work due to the need to add or exclude certain elements, as deemed necessary by the engineers, architects and project managers, were the reasons for the decrease in the actual cost. The Administration also informed that the change has been included in the expected savings as reported in the fourteenth annual progress report of the Secretary-General on the implementation of the capital master plan.

(b) Cost of post renovation works

15. There has been an increase in costs of residual capital works which were offset internally and covered within the existing budget.

Table 2
Cost of residual capital works and interim solutions
(Millions of United States dollars)

Activity	*Estimate 2015*	*2016 forecast*	*2017 forecast*
Alternative food services[a]	5.00	4.30	3.60
Dag Hammarskjöld Library[a]	4.00	3.10	2.80
North Lawn third basement classrooms[a]	5.00	5.10	5.30
Total interim solutions	**14.00**	**12.50**	**11.70**
Demolition and landscaping[b]	20.00	19.00	19.40
Security-related works at 42nd and 48th Streets[b]	15.00	17.10	17.90
Total residual works[b]	**35.00**	**36.10**	**37.30**

Source: Administration data.
[a] Actual final.
[b] Anticipated.

16. At the time of the Board's previous report, the estimated cost of interim solutions for the Library and South Annex Buildings, together with work on the third basement, was $12.5 million. Table 2 shows that there has been a decrease of $1.0 million in the actual final cost of the interim solutions for functions previously located in the Library and South Annex Buildings, while there has been an increase of $0.2 million in the estimated cost of work on the third basement.

17. The Board notes that there continues to be volatility within cost estimates of the residual capital works. The estimated cost of residual capital works has increased by $1.2 million (3 per cent) to $37.3 million over the anticipated final cost forecast in 2016 on account of the increase in scope of work and approval of acceleration allowances.

18. The Administration, while accepting that there had been an increase of $1.2 million in the cost of the two residual works, from $36.1 million to $37.3 million, stated that the increase is being offset internally by the savings realized as a result of the completion of the interim solutions. It was added that the overall total cost of the five sub-projects remained at $49 million in accordance with the 2015 forecast. The Administration informed that all increases in cost are undertaken pursuant to a standard rigorous process of issuance of formal change orders, which are vetted by the architect and/or engineer of record, and the capital master plan project managers, as well as the project management company, and once approved, are included in the formal amendment to the contract through vetting and review by the Procurement Division. The Board notes that the Administration has reiterated the Board's finding without citing the specific reasons for changes in the cost estimates of individual sub-projects.

19. In the Board's last progress report (A/71/5 (Vol. V)), it was mentioned that the General Assembly, in its resolution 69/274 A, had requested the Secretary-General to submit to the Assembly the future proposals related to the renovation of the Library and the South Annex Buildings as separate projects outside the scope of the capital master plan. The Administration stated that given the current security

environment and the inability of either building to be retrofitted cost-effectively to meet the bomb blast standards, comprehensive future proposals will be prepared only once the Assembly has made a decision on the question of long-term accommodation in New York.

20. The Administration stated that based on the studies undertaken to evaluate the resilience of the buildings to threats from adjacent roadways, it was determined that neither building, within reasonable costs, could be successfully renovated to achieve safe occupancy on account of the structure of the buildings themselves, which were relatively lightweight, and their proximity to the FDR Drive off-ramp.[2] It was added that as a result, the design of the renovation of the two buildings was suspended. In its resolution 69/274 A, the General Assembly indicated that the renovation of the two buildings would not be completed under the capital master plan. In order to continue to ensure functionality and operations, the Secretariat relocated the functions housed in both buildings as part of the three interim measures as was indicated in the twelfth annual progress report of the Secretary-General on the implementation of the capital master plan (A/69/360). Further, the Administration added that proposals relating to the renovation of the buildings would be submitted to the Assembly for its consideration and approval in future as a separate project, outside the scope of the capital master plan, in accordance with Assembly resolution 70/239. The Board was informed that the preparation of such comprehensive proposals with alternative options requires the engagement of a third-party consultant with the requisite expertise in the development of such submissions.

Change orders

21. As noted in previous reports, there have been a large number of change orders to contracts because rather than await complete detailed design documents, the Administration began construction work using incomplete designs. The approach added risk and uncertainty. In the previous report, the Board reported that there had been 4,700 change orders, with a total value of $497 million, as at March 2016. Some 46 change orders, with cumulative value of $1.75 million related to construction contracts for two remaining activities, which are still under way, were approved between April 2016 and February 2017.

Savings from construction contracts

22. As noted in the fourteenth annual progress report of the Secretary-General on the implementation of the capital master plan, the total cumulative value of savings from cancellation of prior-year obligations through the lifetime of the project amounted to $217.4 million.

23. This cumulative amount is the aggregation of the unutilized balances from all of the guaranteed maximum price contracts with the construction manager, as well as from other contracts with the designer architect, or obligations in the capital master plan account. The Administration informed that such savings are earmarked to cover the ongoing construction, operational and other project costs as an integral part of the overall project budget and management of the project liquidity needs based on project expected expenditures. There is no breakdown of the balances resulting from the liquidation/cancellation of last year's obligations. While the savings are not tracked separately or kept in a different earmarked fund, they are "recycled" in their entirety and constitute an integral part of the overall project budget.

[2] The Franklin D. Roosevelt East River Drive (FDR Drive) is a 9.44-mile (15.19-kilometre) freeway-standard parkway on the East Side of the New York City borough of Manhattan.

24. The Board noted that while the savings from cancellation of prior-year obligations are specifically included in a separate and distinct budgetary line within the capital master plan annual progress reports, it is not possible to drill down the savings to the specific project components and the reasons for them.

25. The Administration concurred with the Board's observations.

Claim against the main contractor

26. There are two ongoing arbitrations related to the capital master plan to which the United Nations is a party. These arose from arbitrations brought against the main contractor by its subcontractors.

27. In July 2015, the main contractor filed a notice of arbitration under its agreement with the United Nations seeking indemnification in the event that it would be liable for a substantial claim from one of its subcontractors. The first arbitration arose as a result of an arbitration brought against the main contractor by its electrical subcontractor. Under its agreement with the main contractor, the subcontractor claims that the main contractor owes an excess of $67 million for the work it performed under several contracts with the main contractor as part of the capital master plan. The subcontractor has alleged that throughout the duration of his work, the main contractor, the United Nations and its architects, engineers and other consultants directed an extraordinary amount of additions and changes to the scope, character and schedule of its work. As a direct result of these changes, the subcontractor claims that it was compelled to perform its work out of sequence and in an inefficient manner, resulting in uncompensated costs. The United Nations has disputed that the main contractor has a right to be indemnified from such claims under the contract. Formal proceedings before the arbitral tribunal have commenced.

28. The second arbitration arose as a result of an arbitration brought against the main contractor by its mechanical systems contractor. In this case, the subcontractor claims that the main contractor owes it in excess of $4 million for work that it performed under several contracts with the main contractor as part of the capital master plan. Although the main contractor has denied the subcontractor's claims, as in the first case, the main contractor itself claims that if it were found to owe any additional sums to its subcontractor, then the liability for such sums should be passed on to the United Nations. The United Nations has disputed that the main contractor has a right to be indemnified by the United Nations from such claims under the contract. An arbitral tribunal has not yet been constituted.

29. The Administration stated that the Office of Legal Affairs has retained the outside legal counsel to defend the interests of the Organization in both the cases. It was further informed that the United Nations has now filed a claim (5 January 2017) seeking declaratory relief that it is not obligated to indemnify the main contractor under their agreements.

Resourcing the projects to completion

30. In June 2015, the Administration estimated the cost of managing the project to completion at $2.8 million. The details are set out in table 3 below.

Table 3
Estimated cost of completion (June 2015)

Component	*Period*	*Months*	*Cost (United States dollars)*
Administration's original plan (as at June 2015)			
Five United Nations staff to close out contracts of main contractor (2 P-5; 2 P-4; 1 General Service (Other level))	1 July-31 October 2015	4	312 600
Three external contractors to close out contracts of main contractor	1 July-31 October 2015	4	42 000
Three United Nations staff to project manage capital works (2 P-4; 1 General Service (Other level))	1 July 2015-31 December 2016	18	716 400
Total United Nations staff and contractor cost			**1 071 000**
Programme management consultancy costs	1 July-31 December 2015	6	1 762 610
Total costs for closing out project			**2 833 610**

31. However, the cost of managing the project to completion was reworked to be $6.7 million as of March 2017. The details of the cost are as shown in the table below:

Table 4
Cost of completion (March 2017)

Component	*Period*	*Months*	*Cost (United States dollars)*
Cost as at March 2017			
United Nations staff[a] to close out contracts of main contractor (1 ASG; 2 P-5; 2 P-4; 2 General Service (Other level)) (3 vacancies: 1 P-5; 1 P-4; 1 General Service (Other level))	1 July 2015-31 December 2016	18	744 900
Three external contractors[a] to close out contracts of main contractor	1 July 2015-15 April 2017	22	190 500
United Nations staff[a] to project manage capital works (2 P-4)	1 July 2015-13 October 2016	16	342 300
United Nations staff and contractor cost total			**1 277 700**
Programme management consultancy costs[b]	1 July 2015-31 August 2017	26	5 400 810
Total costs for closing out project			**6 678 510**

Abbreviations: ASG, Assistant Secretary-General.
Source: Information provided by the Administration.
[a] All staff/contractors were not deployed for the entire duration.
[b] Costs are net of adjustments of remaining balances from previous periods.

32. The Administration stated that while there has been an increase in the staff cost from $1.071 million, as presented in the fourteenth annual progress report on the implementation of the capital master plan, to $1.277 million, there would be a decrease if the comparison was made with the figure presented in the thirteenth annual progress report ($1.7 million). The Administration also stated that the increase in the cost of the project management consultant firm is to be attributed to the need to complete the additional interim solution and residual construction

works, which required the extension of the engagement of the services until 31 August 2017.

United Nations staff in the core team

33. Before its closure, the Office of the Capital Master Plan developed plans to transfer a core team of eight staff, three contractors and 20 consultants from the programme management firm to the Office of Central Support Services to close all outstanding contracts and manage the remaining works. The Administration informed that the staff moved to other offices and assumed new functions. As a result of this departure, Facilities Management Service personnel in the Office of Central Support Services assumed the full roles and responsibilities associated with the remaining activities relating to close-out of the capital master plan as part of their day-to-day portfolio. The Planning, Design and Construction Section of the Facilities Management Service is managing the operational aspects and oversees the construction activities themselves, while the Administrative, Finance and Personnel Section of the Facilities Management Service is managing the day-to-day transactional, finance and budget aspects, as well as the overall close-out of the project. From an oversight perspective, the Chief of the Facilities Management Service as well as the Assistant Secretary-General (Office of Central Support Services) are involved in the activities and receive reports on the progress made and the issues encountered so as to allow them to monitor and oversee the activities. In addition, an Under-Secretary-General (Department of Management) continues to provide overall supervision.

Growing cost of consultancy support

34. The programme management consultancy cost is a significant component of the cost of managing the project to completion. The contract for the programme management consultancy has been amended 37 times, increasing its not-to-exceed amount from the initial $15.9 million to $59.7 million. The programme management consultant discharges the responsibilities of cost estimation, project management, cost management and document management. The Administration stated that the need for document management services has increased to cover the document retention/archiving requirements as the project winds down. However, in the staffing requirements of the thirty-seventh amendment to the contract for the programme management consultancy, three project managers and three cost managers have been estimated. The Board noted that there were no positions for web managers, who had earlier discharged the responsibilities of document management under the contract, although the Administration has stated that the need for document management services has increased.

35. The period of the programme management consultancy contract has been extended until August 2017. The Administration has informed the Headquarters Committee on Contracts that a consultancy contract would be required to deliver the remainder of the activities associated with the ongoing construction and post-renovation activities, as well as with the close-out activities. The close-out activities will be taken up only after the completion of residual works of landscaping and security-related works by June 2017. Moreover, two subcontractors have filed litigations against the construction management consultant. The construction management consultant has impleaded the United Nations to indemnify any claims from the subcontractors. The remaining works and the litigations could result in a further extension of the programme management consultancy contract beyond August 2017 and the consequent increase in the cost.

36. The Administration is of the view that there is no need to extend the project management consultancy because of the litigation. The litigation is handled by the

Office of Legal Affairs and the outside legal counsel. The project management company is needed only for the construction-related activities. Hence, the Administration held that increased costs are not envisaged.

C. Project schedule and scope

Final completion and certification of work

37. As brought out in the Board's previous report (A/71/5 (Vol. V)), final completion and certification constitute a complex and potentially lengthy exercise which requires finalizing punch-list items, completing any corrective work required and agreeing final prices for all work. All contractual documentation, such as warranties, operating manuals and training materials, must also be submitted. The process is subject to a process of verification by programme managers and architects of record to safeguard the interests of the United Nations.

38. The final stage of completion involves the administrative closure and final settlement of all contracts, in particular the main guaranteed maximum price contracts. As mentioned in the previous report of the Board (August 2014), final completion was expected in December 2014 with administrative closure in June 2015. By March 2017, those dates had slipped to June 2017 and August 2017, respectively.

39. The Advisory Committee on Administrative and Budgetary Questions was informed by the Secretariat that the primary work under 24 different guaranteed maximum price contracts had been completed (see A/71/541, para. 8). The Advisory Committee was also informed that two additional contracts of the six open guaranteed maximum price contracts referred to in the previous report of the Board (A/71/5 (Vol. V), para. 38) had been closed.

40. There are two ongoing arbitrations related to the capital master plan to which the United Nations is a party. Both arbitrations arose from arbitrations brought against the main contractor by its subcontractors. In February 2016, the main contractor informed the Administration that none of the contracts could be closed until the claim raised by the subcontractor against the main contractor was resolved. However, the Administration informed that the three contracts (12UN03, 12UN04 and 12UN06) which had the above-mentioned pending litigations had been completed and closed. Only one contract is open as on date.

41. As stated in section 15.9 (1) of the United Nations Procurement Manual, the Procurement Division registry or Procurement Office at a field mission/office away from Headquarters shall close out the contract upon completion of performance and payment. However, the Procurement Manual provides that a contract may not be closed out if any dispute between the parties remains outstanding. Further, section 15.9 (2) provides that once the contract has been so closed, it shall not be reopened for any cause. If the requisitioner and/or end user requires additional deliveries of goods or services, a new requisition shall be sent to the Procurement Office.

42. Upon its being pointed out by the Board that the closure of the above three contracts was not in line with the provisions of the United Nations Procurement Manual, the Administration stated that except for the disputed amount under arbitration, all accounts had otherwise been agreed and reconciled, and that all invoices had been settled and paid. The Administration informed that the Procurement Division had not closed the contracts. It further clarified that from the operational perspective, if the capital master plan is required to make a payment

under any of these contracts, this will be feasible and there will be no need to raise a new requisition, as would have been the case had the contract been closed.

Residual capital works

Demolition of the North Lawn Building and landscaping works

43. According to the twelfth annual progress report of the Secretary-General on the implementation of the capital master plan (A/69/360, para. 21), the demolition of the temporary North Lawn Building and the subsequent landscaping activities were to be initiated and contracted by the Office of the Capital Master Plan in early 2015 and were to be completed by the Office of Central Support Services by the end of 2015. This task included the relocation of the limited remaining functions, including offices for staff of the Department of Safety and Security, classrooms and teacher offices, touchdown space and other offices, and the removal of the building.

44. The General Assembly, in its resolution 70/239, noted with concern the continued delays in the demolition of the temporary North Lawn Building, and requested the Secretary-General to ensure that the demolition of the building was completed without further delay.

45. In the thirteenth annual progress report of the Secretary-General on the implementation of the capital master plan (A/70/343), it was mentioned that on the basis of a request from the Department for General Assembly and Conference Management, in order to accommodate requirements during the general debate of the seventieth session, the commencement of the demolition of the North Lawn Building had been postponed until after the conclusion of the general debate. It was also indicated that the planning for its demolition was under way, that a request for proposal had been issued to the vendors and that the demolition work was expected to commence in October 2015 and to be completed by early 2016. This was to be followed by landscaping which was to be completed by late 2016. In the fourteenth annual progress report of the Secretary-General on the implementation of the capital master plan (A/71/309), it was reported that the demolition had been concluded in July 2016 and the landscaping work would achieve final completion by 31 December 2016.

46. The demolition of the North Lawn Conference Building has been completed and the final completion certificate was issued on 27 February 2017, while the landscaping works have yet to be completed. The Administration had envisaged risks to the ongoing activities such as the impact of cold weather, demobilization of the site by the mason due to the cold weather, modification of the mock-up of the trellis at the General Assembly podium wall based on the latest review by the architect, and postponement of the planting of cherry trees to spring 2017 due to weather conditions. Substantial completion is projected for May 2017 and final completion is expected by June 2017. The artwork has been reinstalled. There has been an increase of $400,000 in the final cost of the project, from $19 million to $19.4 million, which was lower than the original forecast of $20 million.

47. The Board observed that there was a delay of 14 months from the initial scheduled date of completion. The delay in the demolition of the North Lawn Building impacted both the North Lawn landscaping work and the relocation of exterior artworks and gifts included in the landscaping work. The completion of landscaping had to be again rescheduled, from 31 December 2016 (from the initially scheduled end of 2015) to June 2017. The Administration concurred with the observations of the Board.

Works on the 42nd and 48th Street drives

48. According to the Secretary-General's update of the eleventh annual progress report on the implementation of the capital master plan (A/68/352/Add.2), the work relating to security on First Avenue and on 48th Street was set to be completed by 2014 but delays in the permitting process by the host city could move that date to 2015. In the twelfth annual progress report of the Secretary-General on the implementation of the capital master plan (A/69/360), it was indicated that the security-related work, including the reconfiguration of the north and south entrances of the Service Drive to accommodate a loading dock at 48th Street and revised traffic patterns at 42nd Street, could also be commenced only after the issuance of the necessary permits by the host city. This work was to require up to 18 months of construction time and was scheduled to be concluded in late 2016.

49. In the Secretary-General's fourteenth annual progress report on the implementation of the capital master plan (A/71/309), it was mentioned that the security-related work at the 42nd and 48th Street entrances had begun in April 2016 with substantial completion expected by end 2016 and final completion by 1 April 2017.

50. The Administration informed that the street entrance for 42nd Street had been completed and the final completion certificate was issued on 14 February 2017; and that the technical specifications and location of asphalt exterior bumps had been decided by the Department of Safety and Security and the contractor but that, owing to weather conditions, construction would be completed in spring 2017 when asphalt plants reopen. The Administration added that the 48th Street works were still ongoing and the risks envisaged and that key ongoing activities entailed the installation of catch basins which was delayed owing to bad weather. It was added that the interior construction works were progressing and the date of substantial completion had to be extended owing to a delay in obtaining a power tie-in for testing by the Fire Department of the City of New York. In respect of the mail screening rooms, the Administration informed that the revised phasing of implementation was being reviewed by the Department of Safety and Security and the consultant. The Administration expects substantial completion by 1 June 2017 and final completion by 30 June 2017 for the 42nd Street and 48th Street works. Overall, there has been an increase of $800,000 in the final cost, from $17.1 million to $17.9 million.

51. The Board observed that there had been a delay of 2 years and 6 months from the original scheduled date of completion (end of 2014). The Administration concurred with the observations of the Board.

Interim solutions for the Library and South Annex Buildings

52. In the report of the Board (A/71/5 (Vol. V)), the significant delays in completing the interim solutions, as compared with the original plan developed by the Office of the Capital Master Plan before it closed in July 2015, had been pointed out. The date of final completion of reconfiguration of the Library Building was March 2016 and that of the alternative food services in the Secretariat and Conference Buildings was January 2016. Construction of the classrooms and offices in the North Lawn third basement started in November 2015 with substantial completion expected in April 2016. The initial anticipated cost of interim solutions was $14 million (estimated cost in 2015), which was reduced to $12.5 million (estimated cost in March 2016).

53. The Administration informed that the three interim measures for the relocation of the functions housed in the Dag Hammarskjöld Library and South Annex

Buildings that had been undertaken to ensure continuity of functions, were completed. The details are set out below:

- The Dag Hammarskjöld Library Building was reconfigured and refurbished to limit the presence of staff to the north side of the building, with the south side reserved for non-staff use only, such as for storage of equipment and library materials. The initial project budget was estimated at $4 million and the actual cost was finalized at $2.8 million.
- The classrooms and some offices that had been previously located in the South Annex Building were relocated to the original North Lawn Extension Building, in the third basement area, under what used to be the temporary North Lawn Conference Building. In addition, the interpreters lounge and touchdown space were relocated to the Secretariat Building. The initial project budget was estimated at $5 million and the actual cost finalized at $5.3 million.
- The cafeteria, which had previously been located in the South Annex Building, was relocated to the following three alternative food locations:
  - On the southern end of the fourth floor of the Conference Building, including pickup for online ordering
  - A grab-and-go food service on the first basement level of the Secretariat Building
  - Online pickup and coffee and snack service at the northern end of the Secretariat lobby.

The initial budget was estimated at $5 million and the actual cost was finalized at $3.6 million.

54. The Board noted that the Administration had previously informed in March 2016 that the relocation of the South Annex Building cafeteria was completed at an estimated cost of $4.3 million. Similarly, the Administration informed that the limited renovation of the Dag Hammarskjöld Library Building was completed with an estimated cost of $3.1 million. However, the Administration has now informed that the actual costs incurred for relocation of the South Annex Building cafeteria and limited renovation of the Library Building were $3.6 million and $2.8 million, respectively. The Administration concurred with the observation of the Board.

D. Managing the campus

55. The campus works were all substantially completed and handed over to the United Nations by September 2014. The Administration has been managing and maintaining the campus through utilization of a combination of United Nations staff and maintenance service contracts.

Managing everyday operations

56. The Facilities Management Service help desk received about 17,000 service requests during 2016, necessitating 18,707 work orders. Out of the 17,000 service requests, about 6,000 pertained to electrical, heating, ventilation and air-conditioning issues (HVAC) and plumbing issues. Non-mandatory satisfaction feedback is part of the closure procedure for a service request. The feedback included five questions pertaining to the timeliness and quality of the services. A high level of user satisfaction on service request resolution was reported. From the data provided, the Board noted that there had been only 2,698 survey responses as measured against the nearly 17,000 service requests (representing only a 16 per cent

response rate), which may not constitute a representative sample. However, the Administration could not provide details on the service requests and their resolution. As suggested by the Board previously, the Facilities Management Service could go further by developing a simple management dashboard to report performance against key indicators and set standards regarding the expected volume and type of calls to the help desk, which could be used to monitor performance (see A/71/5 (Vol. V)).

57. The Administration concurred with the observations of the Board, while stating that the service requests represent only one aspect of the maintenance of the campus in response to concrete requests of personnel.

Maintenance arrangements

58. The Secretary-General had reported in his fourteenth annual progress report on the implementation of the capital master plan (A/71/309) that, while the newly renovated buildings required fewer overall maintenance and repair-related efforts, the newly installed sophisticated systems and equipment required more consistent and costly servicing. The report also indicated that the maintenance of the new system called for technical expertise at high levels which was not possessed by the Secretariat in-house, and for which the services of special commercial vendors were required. The Administration has entered into 31 maintenance service contracts for Headquarters at a yearly cost of $17.06 million,[3] of which $11 million is for cleaning services and the balance for servicing the newly installed systems. The cumulative expenditure on maintenance (under section 29D[4] of the proposed programme budget) of capital master plan assets since the biennium 2006-07 is shown in table 5. This does not include the major maintenance cost (under section 33[5] of the proposed programme budget) which was about $8.5 million per biennium and on utilities which is about $21.7 million per biennium.

Table 5
Maintenance expenditure under section 29D of the proposed programme budget
(Millions of dollars)

	2006-2007	*2008-2009*	*2010-2011*	*2012-2013*	*2014-2015*	*2016-2017*	*2018-2019*
Amount	29.76	32.03	27.15	27.89	29.85	36.62[a]	39.57[b]

Source: Information furnished by the Administration.
[a] Actual for 2016 and forecast for 2017.
[b] Forecast.

59. In addition to the contractual maintenance services, in-house electrical, heating ventilation and air conditioning (HVAC), plumbing and machine shops are involved in the maintenance of capital master plan assets. As reported by the Board last year, managing the renovated building and systems had required four additional staff in the Plant Engineering Section,[6] increasing the complement to 83 staff

[3] Excluding (a) contracts for supply of material and parts, of which there are 23, with a cumulative value of $0.87 million, and (b) expenditure of $0.08 million on raptor parts, pest control and shredding services for which no formal contracts were executed. In addition, the Administration informed that there were three contracts at the bidding stage.
[4] Budget for common support services.
[5] Budget for capital expenditure related to construction, alteration, improvement and major maintenance.
[6] The section within the Facilities Management Service responsible for planning and organizing operational maintenance of buildings, including the running of mechanical, electrical and plumbing systems.

(A/71/5 (Vol. V)). The Administration informed that owing to staffing and budget constraints, the proposed frequency of some of the maintenance actions had been reduced. It also informed that staffing in the HVAC shop was inadequate in comparison with the need for basic preventive maintenance and that the current staffing resource was not adequate to meet even the minimum maintenance recommended by the manufacturer. The Administration elaborated that there was a need for approximately 23,742 working hours per year in the HVAC shop which currently had a capacity of approximately 18,000 working hours. This does not include the resource requirements for functions of emergency and corrective repairs, customer service, and supervision of contractors and staff, which are also performed by the HVAC shop within existing resources. It was indicated that this would necessitate a 31 per cent increase in resources in the HVAC shop to meet the bare minimum, which does not meet even the lowest threshold recommended by the manufacturer.

60. In response to previous recommendations of the Board,[7] the Administration informed that it planned to implement the Umoja plant maintenance module to record detailed equipment history and maintenance records. These new data will be used to improve the maintenance activities and to ensure that such responsibilities are being performed effectively. In March 2016, the Administration planned to engage a specialized firm at the end of 2017 after 12 months of maintenance data were available in the plant maintenance module of Umoja. The firm was expected to undertake an external independent review of maintenance practices and approaches and assess the balance between outsourcing and the in-house provision of maintenance, ensuring the cost-effective use of resources. However, as stated in the fourteen annual progress report, this is now planned for late 2018.

61. While pilot testing of the Umoja plant maintenance module has been completed, the module has not yet been deployed. As stated in the eighth progress report of the Secretary-General on the enterprise resource planning project (A/71/390), service management processes including planning and monitoring preventive maintenance for, inter alia, buildings and equipment are part of the "Other Extension 2 projects" under Umoja Extension 2. Therefore, the Umoja plant maintenance module would be part of Other Extension 2 projects. The report states that Other Extension 2 projects are scheduled up until the third quarter of 2018. The Facilities Management Service needs to coordinate with the Office of Information and Communications Technology (OICT) the scheduling for deployment of the Umoja plant maintenance module at an early date so as to ensure that the scheduled engagement of a specialized firm is carried out by end 2018. The consultant's report could provide necessary inputs towards preparing an agreed comprehensive long-term maintenance plan, including the in-house and contractual resource requirements.

62. **The Board recommends that the Administration make efforts to operationalize the Umoja plant maintenance module to enable an early review of its maintenance practices. This would enable the Administration to prepare a long-term maintenance plan covering any gaps in its maintenance efforts.**

63. The Administration concurred with the Board's observations. The Administration informed that the maintenance costs were reduced in the budget submission for 2018-2019 and were expected to be set at a level no greater than the 2016-2017 level.

[7] A/69/5 (Vol. V), para. 25 (c).

Long-term asset management

64. To obviate the need in future for such a costly and disruptive renovation project as the capital master plan, the United Nations needs to move away from its traditional reactive approach towards a proactive maintenance approach. The strategic capital review assessed the condition of the global estate for the first time and by performing a life-cycle replacement analysis, the Administration proposed its first 20-year rolling capital programme. In response to the request of the General Assembly to better assess the potential costs and benefits of a preventive maintenance approach, as compared with the existing reactive approach, the Administration engaged a specialist cost-estimation consultancy firm to carry out a comparative cost-benefit analysis. The analysis indicated that a preventive approach for the three renovated buildings could result in savings of $694 million over 50 years. However, the Assembly has requested detailed information relating to the methodology of the comparative analysis and comparison with the application of similar strategies in other public entities. The Board is of the view that the Administration should expedite efforts to optimize the maintenance approach so as to ensure that the United Nations derives maximum value from the investments in its capital assets.

65. The Administration noted the concerns expressed by the Board and assured it that steps will continue to be taken to address those concerns through the submission of relevant reports to the General Assembly.

Protection of assets

66. The capital master plan assets are the entire buildings, as a turnkey solution, with all of the numerous subsystems integrated therein. All capital master plan assets are part of the entire assets of the Organization and are not segregated or separated from the remainder of the items for the purposes of capitalization. After renovation, the renovated buildings and basements provide a more modernized working environment, operated by sophisticated systems and equipment, while also providing improved security for much of the campus. It is essential to manage and protect the renovated building and systems in order to maximize the benefits of the renovated campus.

67. The Board noted that in 2016, physical verification of the assets of United Nations Headquarters was carried out. The Board analysed the physical verification report provided by the Administration in respect of the buildings renovated under the capital master plan project, which include the General Assembly, Secretariat, Conference and North Lawn Buildings, and made the following observations:

- Out of 1,000 assets verified during physical verification, 208 assets could not be located, which represented 20.80 per cent of the total verified assets
- The 208 assets that could not be located included:
  - 150 assets that were available in 2015
  - 25 assets that were created in 2015
  - 33 assets that had not been located since 2014
- The Board also noted that the fact that the above-mentioned assets which could not be located included eight local area network (LAN) file servers posed a risk to the information assets of the Organization
- Moreover, for 78 assets, the initial location was not indicated.

68. While managing the day-to-day operation of the campus, it is vital to ensure the protection and safety of the assets of the renovated campus. During physical verification, with regard to 286 assets including information technology equipment, either they could not be located or their location was not indicated, which is a matter of concern and indicates a deficiency in internal control.

69. **The Board recommends that the Administration take steps to strengthen the internal control for protection of assets, and for their proper recording and monitoring.**

70. The Administration stated that the physical verification exercise is a joint effort between the department or office responsible for the property and the team conducting the actual physical verification. The Administration added that it will continue to work along with departments and offices to improve the current framework and to strengthen processes and internal control mechanisms for the protection, proper recording and monitoring of assets. Furthermore, the Administration will continue to provide departments and offices with support, guidance, training and tools so as to ensure that proper recording and monitoring of assets are maintained. The Administration also provided assurance that it will continue to emphasize the importance of safekeeping and safeguarding the assets of the Organization and the need for departments and offices to improve their current property management structure, with the adequate and suitable resources required to fulfil their responsibility in respect of the management of property.

71. The Administration acknowledged the findings of the Board and accepted its recommendation. It also stated that it would continue its efforts to resolve discrepancies in the physical inventory exercise and locate the assets that had not been found. It further stated that the Secretary-General intended to submit a report to the General Assembly at the main part of its seventy-second session on strengthening the management of property of the Organization.

E. Maximizing the benefits of the renovated campus

Energy efficiency

72. The capital master plan targeted a minimum 50 per cent reduction in energy consumption. Several energy-efficient features have therefore been incorporated in the capital master plan. These include open offices, energy-conserving cooling, energy-efficient lighting throughout the campus and exterior glazed surfaces in the renovated buildings. United Nations Headquarters also has two building management systems. These systems control energy usage by remote and programmable means and prevent wastage. In July 2011, a study was conducted by a consultant on the energy efficiency achieved as a result of the capital master plan. The study, which was based on an energy model for determining energy requirements, considered a set of parameters for energy consumption on the basis of presumed work-hours and temperature settings. The study calculated an increase of 15 per cent in electricity consumption and a reduction of 81 per cent in steam consumption against the 2006 baseline.

73. Another study of energy efficiency was conducted in April 2015 by the same consultant after taking into account later engineering changes such as the waterside economizer implementation and variable flow of the river water pumps. This study calculated an energy saving of 21 per cent for electricity and 89 per cent for steam against the 2006 baseline. This study entailed a revision of the parameters for energy consumption considered in the earlier (July 2011) study conducted by the consultant. The Administration informed that the operating hours assumed by the

revised energy model were changed very aggressively and deviated significantly from actual practice. However, it added that the model did not take into account further energy reduction initiatives undertaken since the report, most notably a light-emitting diode (LED) retrofit of the lighting fixtures. The Administration hoped that the effect of these later works, most of which were performed in the summer of 2016, would allow it to meet the operating target for electricity usage in 2017.

74. The Advisory Committee on Administrative and Budgetary Questions, in its report on the fourteenth annual progress report on the implementation of the capital master plan, observed that the efficiencies reported by these studies were calculated using engineering models rather than actual performance. It requested the Secretary-General to provide in his next progress report comprehensive data on the quantifiable efficiency gains achieved, in terms of both energy usage and costs of utilities, based on the actual data gathered.

75. To monitor energy consumption and report on energy efficiency, an Energy Dashboard and Reporting Tool (EDART) has been implemented as part of the capital master plan which measures and reports in real time on energy usage at the aggregate level as well as at the equipment level. It became operational in January 2016. EDART records energy consumption in units of energy. Monthly reports from EDART are the main reporting arrangements on energy consumption. Initial EDART reports were generated in March 2017, which were not accurate. The issue was taken up with the vendor and, after modifications, revised reports were generated. The Administration informed that the reports relating to electricity were at a variance of about 2 per cent as compared with the utility bills. However, the Administration added that the EDART system had proved to be unreliable in accurately recording usage of steam, gas and water. It was added that it was continuing to work with the vendor to improve accuracy and it was stated that in the absence of reliable information from EDART, the Administration was relying on utility bills to track utilities usage. EDART is being used only as a secondary source of information. The disadvantage of using utility bills is that the information is not in real time.

76. The Administration provided a table summarizing information relating to energy usage and electricity invoices relating to 2016. However, this information was not complete to allow comparing the utility bills of 2016 with those of the baseline figures of 2006. With the available information, the Board compared the electricity consumption of 2016 in kilowatt-hours with the baseline figures of 2006. The Board observed that there had been a 13 per cent reduction in electricity consumption. However, the Administration could not furnish the consumption information and invoices pertaining to 2006 for other utilities, including gas, steam and water, and informed that it does not have the invoices from 2006 and has no choice but to rely on the data provided in the report undertaken at that time. As requested by Advisory Committee, the Administration may present comprehensive data on the quantifiable efficiency gains achieved as against the 2006 baseline in its next progress report.

77. The Advisory Committee, in its report on the fourteenth annual progress report on the implementation of the capital master plan (A/71/541), recommended that the General Assembly request the Secretary-General to closely monitor and continue to optimize energy usage. Although there has been a significant reduction in energy consumption, the Board observed that there is scope for further improving efficiency gains by targeting achievement of the parameters set in the April 2015 report of the consultant, where feasible. For example, when there is occupancy on a floor of the Secretariat Building during weekends and other off-peak times, the building management system operates air flow and temperature control in a block of

10 floors around the occupied floor. As a result, owing to occupancy of a few floors distributed across the Secretariat Building during weekends, the air flow and temperature control are operated within the entire building. With a flexible workplace implemented on three floors of the building, the Administration could consider restricting occupancy during weekends and off-peak times to only the floors with a flexible workplace in order to improve energy efficiency.

78. **The Board recommends that the Administration resolve issues associated with the Energy Dashboard and Reporting Tool as related to recording and reporting on usage of steam, gas and water to enable real-time monitoring of all utilities.**

79. **The Board also recommends that the Administration carry out a feasibility analysis on the parameters set in the consultant's report of April 2015 to identify areas for improving energy efficiency, after taking into consideration the enhanced flexibility offered by the implementation of the capital master plan.**

Accessibility

80. The Secretary-General, in his thirteenth annual progress report on the implementation of the capital master plan, stated that the capital master plan improved physical accessibility to the Headquarters compound and made it fully accessible to individuals with disabilities. Some of the key features for improving accessibility included power-assisted doors at entrances and accessible turnstiles, improved horizontal circulation within the building, vertical transportation with all elevators accessible and controls situated at appropriate heights, incorporation of accessible features in the General Assembly and Conference Halls, an appropriate number of fully accessible bathrooms and signage in Braille language.

81. The General Assembly, in its resolution 70/170, requested the Secretary-General to submit to the Assembly at its seventy-first session a report on the status of inclusion of and accessibility for persons with disabilities at the United Nations. Pursuant to the resolution, the Secretary-General submitted a report entitled "Towards the full realization of an inclusive and accessible United Nations for persons with disabilities" (A/71/344 and Corr.1), which included best practices and views of Member States, organizations of the United Nations system and other relevant stakeholders concerning accessibility at the United Nations.

82. The Board noted that under the capital master plan, accessibility elements have been implemented in the Headquarters campus. The Board also noted that the effectiveness of these measures can be validated only by the users. Hence, the Board is of the view that a consultation process with users of these newly implemented accessibility elements, such as staff, delegates and participants, would enable the Secretariat to take further action on making accessibility more effective.

83. **The Board recommends that the Administration conduct a user survey on the effectiveness of the accessibility features in order to identify gaps, if any, in the infrastructure created as part of the capital master plan.**

84. The Administration accepted the recommendation. It also informed that a proposal had been presented to the United Nations Interdepartmental Task Force on Accessibility on 30 January 2017 on developing an online feedback website for all users of United Nations Headquarters to enable them to provide feedback on their accessibility experiences. It was also informed that the Facilities Management Service is chairing a working group established to develop the online tool.

Flexible workplace

85. Having considered the report of the Advisory Committee on Administrative and Budgetary Questions on the implementation of a flexible workplace at United Nations Headquarters (A/68/583), the General Assembly, in its resolution 68/247 B (sect. IV), noted that the flexible workplace strategies in the United Nations should be aimed at improving the overall productivity and efficiency of the Organization, as well as the staff workplace environment.

86. Pursuant to General Assembly resolution 68/247 B, the Secretary-General submitted a report entitled "Comprehensive business case for the application of flexible workplace strategies at the United Nations" (A/69/749) to the Assembly at its sixty-ninth session, which summarized the main findings of the flexible workplace study undertaken during 2014, including the results of the pilot of the flexible workplace at United Nations Headquarters. It was indicated in the report that during the pilot on the 18th and 19th floors of the Secretariat, 84 work seats had been increased to 105, and that by adopting seat sharing on an as-needed basis, 128 staff could be accommodated in that space, factoring in absentee staff, staff who were travelling or in training and unfilled posts at any given time.

87. In the comprehensive business case cited above, the total cost of implementing flexible workplace strategies at United Nations Headquarters was estimated at $49.6 million The anticipated reduction in long-term commercial rental cost was worked out at $19.79 million per annum as a result of the vacation of the Daily News, Albano and Court Square Buildings after lease expiry. Thereby, the total cost of the implementation of flexible workspace was to be offset by the reductions in rent and maintenance by 2020.

88. As of December 2016, $10.42 million had been spent on the project. Against the original plan of not extending the leases of the Daily News, Albano and Court Square Buildings, it was decided to extend the leases of the Albano and Court Square Buildings and relinquish the leases of the Daily News and Innovation Buildings (A/70/708). Further, the project cost had increased from $49.6 million to $65.7 million because of increased customization and firming up of actual costs. As a result, the cost of project implementation was to be offset by 2023.

89. The Administration has now stated that the space efficiency gained by the flexible workplace project would allow the Secretariat to vacate and not renew leases of three buildings (the Daily News Building, Innovation Building and United Nations Federal Credit Union (UNFCU) Building at Court Square in Long Island City).

90. Flexible workplace has been implemented on the 13th floor of the Secretariat Building and all staff moves on this floor are expected to be completed by end 2017. The staff occupying the 12th floor are planned to be moved to the swing space in March 2017. The staff is expected to return to the reconfigured space by June 2017 with an additional gain of 68 workspaces. The next phase will entail vacation by staff of the 20th and 21st floors, their move to a swing space in July 2017 and their return to a reconfigured space by September 2017, with an additional gain of 98 workspaces. The 30th and 31st floors would then be reconfigured, with additional space allocation of 81 seats.

91. The Secretary-General will submit a report to the General Assembly at the main part of its seventy-second session including an update on progress in this regard and presentation of a plan for 2018 involving implementation on a further five floors. The Administration anticipates an addition of 639 seats over 13 floors of the Secretariat Building by September 2018.

92. The Administration stated that the General Assembly had mandated an increase in the occupancy of Secretariat floors up to a maximum 140 staff per floor, whereas the project had planned for an average of approximately 118 staff per floor. The achievability of greater floor occupancy beyond 118 was suggested in the utilization observations conducted in September 2016. The current target of the flexible workplace project is to implement flexible workplace on five floors of the Secretariat Building in 2017 and on a further five or six floors up to August 2018 to enable vacation and non-renewal of the leases of the Daily News, Innovation and UNFCU Buildings. The Secretary-General's report (A/70/708) anticipates space efficiencies greater than those projected in earlier reports which equates to an average of 167 gross square feet per person (a reduction from 200 gross square feet per person).

93. A post-occupancy work productivity index survey and utilization study was carried out after the reconfiguration of the 13th, 18th and 19th floors. In response to the Board's query, the Administration furnished draft phase 1: post-occupancy work productivity index survey and utilization study for S-13, S-18 and S-19. The study indicated that:

- Staff satisfaction had decreased over the period from the phase 1 pre-occupancy survey to the phase 1 post-occupancy survey owing, inter alia, to lack of privacy, foot traffic, lack of space for books and other material, inability to concentrate and constant interruptions. Average floor utilization increased from 35 to 36 per cent
- Effectiveness of focus work declined from 6.7 to 4.3 on a scale of 10
- Seventy-one per cent of respondents chose to sit in the same space most of the time
- Occupancy of work lounges and enclosed booths was at 11 and 19 per cent, respectively
- Quiet zones were not used as intended and the enclosed booths nearby were rarely used. There was an abuse of the quiet zone due to collaboration and use of phones

94. The Administration, while acknowledging that overall staff satisfaction had decreased over the period from the phase 1 pre-occupancy survey to the phase 1 post-occupancy survey, added that this was likely influenced by the unusually high scores reported during the pre-occupancy survey and the limited change management engagement. The Administration also stated that the analysis of the pre-occupancy survey had led to the conclusion that the unusually high scores were an effect of staff reluctance to make the impending change, which would entail giving up their current space by moving to a flexible workplace. The Administration added that surveys conducted earlier revealed a greater level of dissatisfaction with the space. The Administration stated that the post-occupancy survey was conducted in September 2016 when the staff had just moved back from the swing space, which meant that they had not fully settled in within the new space at the time of the survey. The flexible workplace project increased both the number of workplaces on those floors and the number of staff assigned to those floors. However, the observed utilization of the workplaces indicated that the floors could accommodate more staff. This observation has been incorporated in the current plans, which will allow the Secretariat to significantly reduce the requirement for leased buildings and will result in significant reductions in lease and operating costs for Member States on a recurrent basis. The Administration expressed concern regarding the use of the post-occupancy survey to make any definitive statements on the impact on productivity of the implementation of a flexible workplace.

95. **The Board recommends that the Administration regularly monitor productivity gains while ensuring reduction in space requirements.**

F. Acknowledgement

96. The Board wishes to express its appreciation for the cooperation and assistance extended to its staff by the Under-Secretary-General for Management and members of his staff.

(*Signed*) Shashi Kant **Sharma**
Comptroller and Auditor General of India
Chair of the Board of Auditors
(Lead Auditor)

(*Signed*) Mussa Juma **Assad**
Controller and Auditor General of the United Republic of Tanzania

(*Signed*) Kay **Scheller**
President of the German Federal Court of Auditors

30 June 2017

Annex

Status of implementation of recommendations up to the year ended 31 December 2015

Report reference	*Summary of recommendation*	*Administration's comments on status, June 2017*	*Board's comments on status, June 2017*	*Fully implemented*	*Under implementation*	*Overtaken by events*	*Not implemented*
Sixty-eighth session/ paragraph 77	The Board recommends that the Administration adopt a whole life-cycle asset investment strategy and assess costed options for the through-life maintenance of the Headquarters buildings	Following the issuance of the report of the Secretary-General on the strategic capital review (A/70/697), which included a comparative analysis of the existing reactive approach versus the life-cycle replacement approach to capital maintenance, the General Assembly, in its resolution 70/248 B, requested that more detailed information on the potential costs and benefits of a life-cycle replacement approach be presented in future reports of the Secretary-General. Subject to further study, the Administration intends to submit the next such report to the Assembly at its seventy-second session	In response to the observations of the General Assembly on the strategic capital review, the Administration has carried out a cost-benefit analysis of preventive versus reactive maintenance. However, the Assembly requested further information on details of costs and benefits of preventive maintenance and a comparison with the application of similar strategies in other public entities, which have yet to be provided. The Board therefore considers this recommendation to be under implementation		X		
Sixty-eighth session/ paragraph 82	The Board recommends that the Office of Central Support Services review its ongoing maintenance contracts, based on an assessment of the total scope of facilities management requirements after completion of the capital master plan, and assess the possibilities for obtaining better value from any future strategic commercial relationship	The Administration notes that this recommendation is similar to the recommendation in paragraph 17 (d) of the summary of the Board's report (A/71/5 (Vol. V)), in which the Administration indicated that it will engage in an independent review of maintenance practices by the end of 2017, after 12 months of capturing maintenance data in the plant maintenance module of Umoja	The Administration now plans to undertake the independent assessment of its maintenance approach in late 2018, after a year of Umoja plant maintenance module deployment. Any possibilities for obtaining better value from any future strategic commercial relationship could be carried out after the assessment of its maintenance approach. Recommendation 17 (d) of the Board's report for 2015 cannot be considered a replacement for this recommendation. This recommendation is therefore treated as under implementation		X		

Report reference	*Summary of recommendation*	*Administration's comments on status, June 2017*	*Board's comments on status, June 2017*	*Fully implemented*	*Under implementation*	*Overtaken by events*	*Not implemented*
Sixty-ninth session/ paragraph 25 (b)	Apply independent project assurance to all major projects. There is currently no established approach to providing independent project assurance in the United Nations	The Administration regards this recommendation as implemented since the area of independent assurance is addressed in the construction project guidelines promulgated by the Office of Central Support Services and would be taken into account in the governance structures of all future major capital projects presented for the consideration and decision of the General Assembly. The Administration also states that the Office of Central Support Services provides oversight (with emphasis on risk management) and establishes a governance structure tailored to each major renovation and new construction capital projects, for example, for the renovation of the Africa Hall in the Economic Commission for Africa and the seismic retrofit and life-cycle maintenance project in the Economic and Social Commission for Asia and the Pacific	The guidelines for management construction projects (March 2016) provide for project assurance in the project organization. However, they do not provide for operationalizing the assurance mechanism under the project management process. The Board therefore considers this recommendation to be under implementation		X		
Sixty-ninth session/ paragraph 25 (d)	Commit to visible senior management leadership on the flexible workplace project. Experience suggests that, like all change initiatives that have an impact on the day-to-day working environment, senior management leading by example will be vital in gaining staff buy-in and securing the intended benefits	Through meetings and presentations, the flexible workplace project team has engaged in productive discussions with heads of departments on the way forward with project implementation. In order to provide visible senior management leadership for the flexible workplace project, in April 2016, the Assistant Secretary-General for Central Support Services held an open	The Administration is carrying out initiatives such as town hall meetings, extensive communication and other outreach activities. The Administration also plans to conduct another survey on work productivity. The Board therefore considers this recommendation under implementation		X		

Report reference	*Summary of recommendation*	*Administration's comments on status, June 2017*	*Board's comments on status, June 2017*	*Fully implemented*	*Under implementation*	*Overtaken by events*	*Not implemented*
		and frank town hall discussion on the project with staff members. To demonstrate his leadership by example, the Assistant Secretary-General has committed his office to fully implementing the project. The Assistant Secretary-General is also working closely with other senior managers so that they can be champions of the flexible workplace project. Further, the Assistant Secretary-General has committed his office to fully implementing the project and is working with the new Administration to gain buy-in so that they can be champions of the flexible workplace project					
Seventieth session/ paragraph 17 (b)	Managing and reporting that the project's outcomes have been delivered, including financial and non-financial benefits expected and achieved from the investment in the capital master plan	In the thirteenth annual progress report of the Secretary-General on the capital master plan, the Administration included a comprehensive summary of the project benefits in line with the original project mandate and expected achievements. Additional information will be included in the fourteenth annual progress report of the Secretary-General on the capital master plan which will be submitted to the General Assembly. It was added that the Administration will provide further details in the fifteenth annual progress report	The Administration had presented cost savings on utilities in the fourteenth annual progress report of the Secretary-General. The Advisory Committee has requested the Secretary-General to report comprehensive data on the quantifiable efficiency gains achieved, in terms of both energy usage and costs of utilities, based on the actual data gathered in his next progress report. The Board therefore considers this recommendation under implementation		X		

Report reference	*Summary of recommendation*	*Administration's comments on status, June 2017*	*Board's comments on status, June 2017*	*Fully implemented*	*Under implementation*	*Overtaken by events*	*Not implemented*
Seventieth session/ paragraph 17 (c)	Accelerating closure of the remaining capital master plan contracts to increase certainty regarding final project costs and to release any potential savings	The Administration is committed to ensuring closure of the remaining contracts within schedule and budget. If any uncommitted balances remain after the closure of all contracts, they will be returned to Member States	The Administration expects the construction projects to be closed by June 2017. After completing the account reconciliation and documentation functions, the programme management consultancy contract would be closed by August 2017. The Board therefore considers this recommendation under implementation		X		
Seventieth session/ paragraph 17 (d)	Reporting the full amount of any savings arising from contract closure and introducing appropriate governance mechanisms to determine the use that can be made of such savings, including specific consideration of returning savings to Member States.	Information on savings from the cancellation of obligations of prior years and their utilization is provided on a routine basis and will be included in the fourteenth annual progress report of the Secretary-General on the capital master plan. Savings can be realized only once all of the work and related operations have been fully completed, the contracts have been closed and all accounts have been fully reconciled. If any uncommitted balances remain after closure of all contracts, they will be returned to Member States	The construction contracts are expected to be completed by June 2017 and the programme management consultancy contract by August 2017. The Administration has informed that savings can be realized only once all of the work and related operations have been fully completed, the contracts have been closed and all accounts have been fully reconciled. The Board therefore considers this recommendation under implementation		X		
Seventy-first session/ paragraph 17 (a)	Strengthen the approach to managing the project to completion in 2017 by (a) updating the anticipated final cost of each sub-project; (b) updating the project plan to include all key milestones, project activities and resource requirements; and (c) updating the costed risk register to reflect the current stage of the project	The Administration has in place detailed matrices for anticipated final cost, project milestones and the updated risk register	The Administration has updated the anticipated final costs and the risk register. Hence, the Board considers this recommendation implemented	X			

Report reference	*Summary of recommendation*	*Administration's comments on status, June 2017*	*Board's comments on status, June 2017*	*Fully implemented*	*Under implementation*	*Overtaken by events*	*Not implemented*
Seventy-first session/ paragraph 17 (b)	Apply newly developed project management guidelines of the Office of Central Support Services to provide assurance over the adequacy of current project management arrangements for the capital master plan	The Administration is applying the project management guidelines that were issued in 2016 in its day-to-day operations	The Administration has developed guidelines for the management of construction projects which have been released in March 2016. The document refers to General Assembly resolution 64/243 as regards developing the guidelines, and drawing in that regard upon lessons learned from the capital master plan. The guidelines are intended to assist project owners in providing effective management of construction projects at offices of the United Nations Secretariat. The Administration has also stated that itis applying the guidelines in its day-to-day operations, as applicable to the current close-out phase of capital master plan. Hence, the Board considers this recommendation implemented.	X			
Seventy-first session/ paragraph 17 (c)	Focus on realizing the full potential benefits from the investment made in the capital master plan and ensure that optimal use is made of the new modern working environment to reduce the use of costly rented accommodation	Further progress depends on a positive decision of Member States during the main part of the seventy-first session of the General Assembly on funding implementation of a flexible workplace	The full potential benefits of the capital master plan included reduction in lease costs. The lease of the Daily New Building is planned to be closed after April 2017. Against the original plan of not extending the leases of the Albano and Court Square Buildings, the Administration now proposes not to extend the leases of the Innovation and Court Square Buildings in September 2018 and April 2018, respectively. The Board therefore considers this recommendation under impl mentation		X		

Report reference	*Summary of recommendation*	*Administration's comments on status, June 2017*	*Board's comments on status, June 2017*	*Fully implemented*	*Under implementation*	*Overtaken by events*	*Not implemented*
Seventy-first session/ paragraph 17 (d)	Perform a detailed analysis of operational data and building malfunctions to help it develop a strong business case for submission to the General Assembly in support of its proposed annual and longer-term maintenance budgets	In order for a meaningful outside review of maintenance practices to be performed, there is a need for at least 12 months of maintenance data in the plant maintenance module of Umoja. As of this moment, information has been uploaded for approximately 150 of about 3,500 pieces of equipment that need to be installed. The Umoja team does not have a mechanism designed to mass-update information collected from duty stations into Umoja. Therefore, it is envisaged that an external review of maintenance practices could be performed only at the end of 2017	The Administration now plans to undertake the independent assessment of its maintenance approach in late 2018, after a year of Umoja plant maintenance module deployment. Development of a comprehensive business case for the annual and longer-term maintenance budgets would be possible after the assessment of its maintenance approach. The Board therefore considers this recommendation under implementation		X		
Seventy-first session/ paragraph 17 (e)	Present a preliminary analysis of utilities data following the closure of the North Lawn Building to the General Assembly during the main part of its seventy-first session and a full year of data, ready for audit, during the resumed part of the session	The Administration included preliminary data on utilities in the fourteenth annual progress report of the Secretary-General on the implementation of the capital master plan	The preliminary analysis of utilities data presented for audit was not complete and, as requested by the Advisory Committee on Administrative and Budgetary Questions, the Administration may report comprehensive data on the quantifiable efficiency gains achieved, in terms of both energy usage and costs of utilities, based on the actual data gathered, in the next annual progress report of the Secretary-General. The Board therefore considers this recommendation under implementation		X		
Total				**2**	**10**		**0**
Percentage				**17**	**83**		**0**

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